

REMARKS

Re-examination and reconsideration of the subject matter identified in caption, as amended, pursuant and consistent with 37 C.F.R. § 1.111 and in light of the remarks which follow are respectfully requested.

As correctly noted in the Office Action Summary, Claims 1-20 are pending in the application, and under consideration. By the above amendments, independent claims 1 and 18 have been revised, in view of the Examiner's comments to more clearly recite the present invention. Support may be found, at least in paragraphs 17, 18 and Figs. 1-2.

Claim Rejections - 35 USC § 102

Claims 1-11 and 18 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Ogata et al. (Japanese Patent Document No. 02043362 A). The claims, as now presented, cannot be rejected for the following reasons.

The present invention relates to a method of bonding a sputter target to a backing plate, and more specifically, the use of a backing plate having spaced-apart ridges on the bonding surface of the backing plate.

In accordance with one aspect of the invention, and as set forth in independent claim 1, a method for forming a solder bonded sputter target/backing plate assembly is provided. The method includes (a) forming a backing plate with a bonding surface having a plurality of segmented and spaced-apart ridges that are disposed on and within the periphery of the bonding surface of the backing plate, which perform as spacers/standoffs for the supply of solder material between said backing plate and a sputter target; (b) forming the sputter target having a sputtering surface and substantially flat bonding surface; (c) applying the solder material to the interface spaces defined by superimposing the sputter target within the periphery of and onto the plurality of ridges on the backing plate; and (d) allowing the solder material to solidify and bond the sputter target to the backing plate so that the plurality of ridges provide an effective uniform thickness solder bonded interface.

Ogata et al. pertains to a method of joining a sputter target and a backing plate by a brazing material. Ogata et al., however, does not disclose the features of the present invention, much less the newly claimed recitations. Specifically, the claims recite the spaced apart ridges to be segmented to accommodate the solder supplied between the backing plate and the sputter target. In this regard, the ridges in the present invention act as spacers to ensure a substantially uniform solder thickness. By comparison, Ogata et al. simply provides grooves or slots in the bonding surface of the backing plate, which appear to extend over the entire surface of the backing plate¹. Further, it appears that the purpose of the grooves/slots shown in Ogata et al is to accommodate a brazing material. By comparison, in the present invention it is a solder material which unites the backing plate and the sputtering target. Given the different materials have different flow/viscosity properties it is difficult to envision that Ogata et al might have been concerned with the uniform thickness of the interface.

Clearly, Ogata et al. does not disclose raised protrusions in the form of segmented space-apart ridges on the bonding surface of the backing plate to accommodate the solder and provide a uniform thickness interface. Moreover, it does not disclose the solder bonding method of the present invention, but rather a brazing bonding. Neither the structure nor the process of making the structure are not the same, nor suggested by Ogata et al. Accordingly, withdrawal of this rejection is in order and it is respectfully requested.

Claim Rejections - 35 USC § 103

Claims 12-17, 19 and 20 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Ogata et al. in view of Ivanov (U.S. Patent Application Publication No. 2005/0284746). This rejection is traversed for the following reasons.

¹ Applicants are relying on an English abstract, as the Examiner has not provided an English translation, nor were the Applicants able to locate an English equivalent or machine translation of this document.

Ogata et al. has been discussed in detail above. Ivanov relates to a sputter target/backing plate joining technique and assemblies made thereby. See paragraph 3. Ivanov has been relied on for the disclosure of a solder comprising Sn-Ag-Cu to form a bond between the backing plate and the sputter target. Official Action at page 6. However, Ivanov does not cure the above-discussed deficiencies in Ogata et al. Specifically, Ogata et al. does not disclose or suggest forming a backing plate with a bonding surface having a plurality of spaced-apart ridges that are disposed on and within the periphery of the bonding surface of the backing plate. Thus, for the foregoing reason withdrawal of this rejection is in order.

CONCLUSION

On the basis of the foregoing amendment and response, Applicants respectfully submit that the claims are in condition for allowance. Favorable action on the merits is respectfully requested. If there are any questions regarding this response, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

Applicants believe that this response is timely and that no further fees are due with this response. However, in the event that a fee or credit is owed or due, the Commissioner is authorized to charge or credit any deficiency/overpayment to Deposit Account No. 16-2440.

Respectfully submitted,



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